

Illinois Commerce Commission

Resource Adequacy in MISO Zone 4

January 30, 2018 Comments of Illinois Industrial Energy Consumers

- I. Resource Adequacy Standards
 - A. How should resource adequacy be defined and how does resource adequacy compare with or contrast with resiliency and reliability?

IIEC Response:

Resource Adequacy is the ability of supply-side (generation) and demand-side (demand response and energy efficiency) resources to meet total electric demand. Resource adequacy is traditionally pursued with the goal of achieving a loss of load expectation that is on average no greater than one day in ten years. This means the goal is, on average, that there will be no more than one loss of load event every ten years. Such an event occurs when there are insufficient resources to meet total electric demand. Unlike electric transmission and distribution-related reliability events, loss of load events generally do not involve widespread customer outages. They typically involve the involuntary curtailment of some limited amount of customer load during the peak demand hours of the day of the event.

A common approach, used to address the one day in ten year loss of load expectation goal, is to acquire sufficient capacity from supply-side and demand-side resources to cover the forecasted demand at the time of the annual system peak, plus a Planning Reserve Margin (PRM). The PRM is typically expressed as a percentage. It is set to produce a loss of load expectation of one day in ten years based on the expected outage rates of resources and the probabilistic analysis of uncertainties. It is important to note that the failure, in a given year, to acquire sufficient capacity to cover the forecasted demand at the time of the annual system peak plus a PRM does not mean a loss of load event will occur that year. It simply means that the probability of such even event occurring in that year has increased to an amount somewhat greater than one day in ten years.

Resource Adequacy is but one component of electric reliability. Resource Adequacy in itself does not assure reliability. Reliable delivery of power over the transmission and distribution system is also necessary in order to assure electric reliability. Reliable delivery is achieved by ensuring the electric transmission and distribution systems are adequately planned to meet peak loads and operated in a secure fashion. Delivery system events can result in widespread customer outages (e.g., the August 14, 2003 blackout of large portions of the Midwest and Northeast United States, widespread customer outages following severe storms due to insufficient tree trimming, etc.).

Resiliency is a relatively new term in the electric power industry. There is currently no consensus on its definition or whether it is a concept that is ultimately relevant to the industry. As a concept, it appears to at least somewhat overlap with reliability.

There are currently no resiliency standards or requirements in the industry beyond what is already implicitly provided for in the North American Electric Reliability Corporation (NERC) Reliability Standards for the Bulk Electric System and Regional Transmission Organization (RTO) market rules, such as those for the Midcontinent Independent System Operator, Inc. (MISO). In Docket No. AD18-7-000, the Federal Energy Regulatory Commission (FERC) is currently exploring the resiliency issue and whether any further related action by it is warranted.

- B. What entities currently address resource adequacy, how do they do so, and how sufficient are such current measures?

IIEC Response:

MISO has resource adequacy provisions contained within its Federal Energy Regulatory Commission (FERC)-approved Tariff. Using the traditional one day in ten year loss of load expectation objective, MISO establishes: (i) a total capacity obligation for the MISO market footprint known as the Planning Reserve Margin Requirement (PRMR) and (ii) a local capacity requirement for each MISO Zone known as the Local Clearing Requirement (LCR). MISO then assigns to each Load Serving Entity (LSE) (i.e., electric utility or Alternative Retail Electric Supplier (ARES)) a share of the total MISO PRMR based on the forecasted demand of the LSE's load at the time of the MISO's annual peak electrical demand.

Each LSE is required by the end of March to acquire sufficient capacity to cover its assigned share of the total MISO PRMR for the coming June to May MISO Planning Year. LSEs can do so by self-supplying that capacity, bilaterally purchasing capacity from other market participants or purchasing it in MISO's voluntary Planning Resource Auction (PRA). LSEs that self-supply their capacity or purchase it bilaterally have the option to either self-schedule that capacity into the PRA or to opt out of the PRA entirely by submitting a Fixed Resource Adequacy Plan (FRAP).¹ If an LSE elects to use a FRAP, a portion of its total capacity submission equal to its load ratio share of the LCR for its MISO Zone must be from that MISO Zone.

In early April of each year, MISO conducts its PRA for the coming Planning Year. After applying the self-schedules and FRAPs that it received, MISO in the PRA acquires sufficient capacity to meet both the total MISO PRMR and the LCR for each MISO Zone. Due to the LCR constraint in the PRA, MISO may in some MISO zones acquire capacity at a higher price than in others. This is due to the transmission constraints that are reflected in the LCR values. When this happens, the resulting PRA prices will be different from zone to zone. LSEs using self-scheduling or a FRAP must pay a Zonal Delivery

Charge to MISO for any price separation that occurs between the location of their capacity and the location of their load. The risk of this price separation disciplines LSEs such that they take into consideration the location of any capacity they are self-supplying or purchasing bilaterally.

MISO's resource adequacy provisions have successfully provided resource adequacy within MISO Zone 4. During the past 15 years, the area covered by MISO Zone 4 has never been subject to a loss of load event due to insufficient resources. Moreover, the evidence shows that electric utilities and ARES do not rely heavily on acquiring their capacity from the MISO PRA. For example, MISO's 2017/2018 PRA results show that over 85% of the capacity resources used for MISO Zone 4 were either self-supplied or bilaterally purchased prior to MISO conducting its PRA.² Only 15% of the capacity resources were purchased from the PRA.

II. Resource Adequacy Measurement

A. How much generation is currently available to meet Zone 4 resource adequacy requirements?

IIEC Response:

10,618 MW of MISO Zone 4 Unforced Capacity (UCAP) was offered, self-scheduled or used in a Fixed Resource Adequacy Plan (FRAP) in the MISO 2017/2018 Planning Resource Auction (PRA).³ This was 4,779 MW in excess of the Local Clearing Requirement (LCR) for MISO Zone 4 of 5,839 MW. Therefore, the capacity resources that currently are available are well in excess of those necessary to meet the local resource adequacy requirement in MISO Zone 4.

With respect to considering whether the Planning Reserve Margin Requirement (PRMR) for MISO Zone 4 is met, the proper measure is to evaluate whether the PRMR for the MISO North/Central subregion as a whole, excluding MISO Zone 1 (i.e., MISO Zones 2 through 7), is met, since the portion of Zone 4's PRMR that is in excess of its LCR can be met from capacity imported from Zones 2 through 7. The MISO market as a whole cannot be considered because there are transmission constraints that limit the amount of excess capacity that can be imported into Zones 2 through 7 from Zone 1 and from the MISO South subregion (Zones 8 through 10). For example, in the 2017/2018 Planning Year, imports of excess capacity from MISO Zone 1 were limited to 686 MW and imports of excess capacity from the MISO South were limited to 1,500 MW.⁴

In Zones 2 through 7 as a whole, 87,661 MW of Unforced Capacity (UCAP) was offered, self-scheduled or used in a FRAP in the MISO 2017/2018 PRA (including 686 MW of excess capacity that could be imported from Zone 1 and 1,500 MW of excess capacity that could be imported from the MISO South subregion).⁵ This was 5,305 MW in excess of the total Planning Reserve Margin Requirement (PRMR) for Zones 2 through 7 of 82,356 MW.⁶ Therefore, the capacity resources that currently are available are well in

excess of what is necessary to meet the resource adequacy requirement of Zones 2 through 7 as a whole, in addition to the local resource adequacy requirement of Zone 4.

Dynegy currently has 5,476 MW of Installed Capacity in the Zone 4 market.⁷ As of June 1, 2017, Dynegy was able to sell 1,437 MW of this Installed Capacity into PJM, of which it actually sold 1,044 MW to PJM for 2017/2018.⁸ This left 4,432 MW of Dynegy Installed Capacity for the Zone 4 capacity market for 2017/2018. This is roughly the equivalent of 4,126 MW of UCAP.⁹ Thus, Dynegy's affiliates own approximately 39% of all of the UCAP from MISO Zone 4 that was offered, self-scheduled or used in a FRAP in the MISO 2017/2018 PRA.¹⁰ However, since MISO Zone 4 currently has a surplus of 4,779 MW over its LCR and MISO Zones 2 through 7 have a surplus of 5,305 over their combined PRMR, assuming no other changes, even if all 4,126 MW of Dynegy's remaining MISO Zone 4 capacity were shut down or sold to PJM, resource adequacy requirements would be met.

- B. What generation resources formerly meeting Zone 4 resource adequacy requirements have recently been lost due to retirement, derating, declining capacity factor, or otherwise?

IIEC Response:

Capacity factor has no relationship to the capacity rating of a capacity resource. Capacity factor relates to amount of energy production over the course of an entire year from a resource, not the ability of that resource to produce power at the time of peak electric demand in the MISO market.

Dynegy retired 1,191 MW of coal-fired Installed Capacity in MISO Zone 4 in 2016 (Edwards Unit 1, Wood River Units 4 and 5, and Newton Unit 2).¹¹ Dynegy did not retire any generating units in MISO Zone 4 in 2017. Besides Dynegy's 2016 retirements, IIEC is not aware of any other recent generating capacity retirements, suspensions, derates or otherwise in MISO Zone 4, other than Meredosia Unit 4 (186 MW), which was officially retired in 2016, but ceased operation well before then.¹²

- C. What current generation resources available to meet Zone 4 resource adequacy requirements are at risk of becoming unavailable going forward and what are the implications of the loss of such resources?

IIEC Response:

Dynegy, in its December 7, 2017 MISO Zone 4 Workshop presentation, suggested it might soon move its 1,100 MW of Joppa generating units from the MISO market to the PJM market and have another 414 MW of its MISO Zone 4 capacity resources at risk of retirement as early as June 1, 2018.¹³ However, as of June 1, 2017, Dynegy has only secured 240 MW of firm transmission capacity from the Joppa facility to the PJM market.¹⁴ It would need to secure a full 1,100 MW of firm transmission service to PJM to move the full capability of Joppa to the PJM market. In addition, Dynegy has not publicly

announced any forthcoming retirements of its MISO Zone 4 capacity resources. Regardless, even if all 1,514 MW of this Installed Capacity were to exit the MISO Zone 4 capacity market, it would not create a resource adequacy issue in Zone 4. As noted in IIEC's comments in Section II.A, in the MISO 2017/2018 Planning Year, there were 4,779 MW of Unforced Capacity (UCAP) in Zone 4 that were either self-scheduled, offered into the MISO Planning Resource Auction (PRA) or used in a Fixed Resource Adequacy Plan (FRAP) in excess of the Local Clearing Requirement (LCR) for Zone 4. In addition, there were 5,305 MW of UCAP that were either self-scheduled, offered into the MISO PRA or used in a FRAP in excess of the total Planning Reserve Margin Requirement (PRMR) for Zones 2 through 7. Therefore, assuming nothing else changes, the loss of 1,514 MW of capacity in Zone 4 would have not adversely impact resource adequacy either in Zone 4 alone or Zones 2 through 7 as a whole.

In Dynegy's Post-Workshop Comments of December 21, 2017, it claimed that ultimately approximately 3,000 MW of Dynegy's MISO Zone 4 generation fleet is at risk of shutdown due to current market conditions.¹⁵ This would have Dynegy essentially shut down all of its Zone 4 capacity that is not already able to be sold into the PJM capacity market.¹⁶ However, Dynegy has already committed to bilateral forward capacity sales in the MISO market of approximately 1,100 MW through the 2020/2021 MISO Planning Year.¹⁷ In addition, rational behavior by Dynegy would have it gradually shut down generation in the search for higher MISO capacity prices. The MISO market rules already allow Dynegy to offer its at-risk coal-fired capacity into the MISO PRA at an offer price of \$139.18 per MW-day.¹⁸ As a result, if the supply of capacity was at some point reduced to the point where Dynegy's capacity is needed to meet the MISO Zone 4 LCR, Dynegy would be able to earn a capacity price for its remaining generation fleet in MISO Zone 4 comparable to what it can earn in the PJM capacity market. Thus, the existing MISO capacity market design can provide Dynegy market prices for capacity comparable to what it can earn in PJM if and when that capacity is needed in Zone 4.

- D. What are the prospects for new generation resources becoming available to meet Zone 4 resource adequacy going forward?

IIEC Response:

As of January 22, 2018, there was 2,224 MW of wind resources, 1,960 MW of solar resources and 57 MW of natural gas-fired resources active in the MISO generation interconnection queue for MISO Zone 4 that were either in the Definitive Planning Phase (DPP), had a generation interconnection agreement in progress, or had an executed generation interconnection agreement.¹⁹ Applying MISO's default nameplate capacity deration factors of 15.6% for wind and 50% for solar, along with MISO's default equivalent forced outage rate of 6% for natural gas-fired combustion turbines²⁰ yields 1,381 MW of additional MISO Zone 4 Unforced Capacity (UCAP), assuming all of the forgoing resources ultimately enter service – not an insignificant addition.

As an aside, it is not surprising that there is not more than 57 MW of new natural gas-fired generation facilities in the MISO generation interconnection queue, given the amount of capacity that is currently available in MISO Zone 4 in excess of the Local Clearing Requirement (LCR) for Zone 4. As IIEC commented in Section II.A., in the MISO 2017/2018 Planning Year, there were 4,779 MW of UCAP in MISO Zone 4 that were either self-scheduled, offered into the MISO Planning Resource Auction (PRA) or used in a Fixed Resource Adequacy Plan (FRAP) in excess of the LCR for MISO Zone 4. Given this existing surplus and the significant expected UCAP additions coming from new renewable resources, there currently is no need for significant new natural gas-fired generation capacity additions in MISO Zone 4.

- E. What non-generation resources are and may be available to meet resource adequacy and how do such resources impact resource adequacy?

IIEC Response:

Interruptible customer load registered with MISO as a Load Modifying Resource (LMR) Demand Resource (DR) is an important source of capacity in MISO Zone 4 and has recently seen growth. Specifically, an Aggregator of Retail Customers (ARC) – MISO’s equivalent of PJM’s Curtailment Service Providers – entered the MISO Zone 4 market for the MISO 2017/2018 Planning Year and was a contributor to the 350 MW of additional LMR DR offers made in the MISO 2017/2018 PRA.²¹ New LMR DRs can be registered with MISO with only a few months’ notice and the amount of UCAP contributed by LMR DRs in MISO Zone 4 should be expected to grow as MISO capacity market prices increase and ARCs continue to enter the MISO Zone 4 capacity market.

In addition, a number of large industrial and institutional consumers self-provide their capacity needs behind the meter through efficient cogeneration facilities that typically involve the use of Combined Heat and Power (CHP) technology. This is also an important source of capacity that manifests itself through a lower Local Clearing Requirement (LCR) and Planning Resource Margin Requirement (PRMR) in MISO Zone 4. Behind the meter generation is another area that should see growth as capacity market prices in MISO Zone 4 increase.

IIEC would also note that Illinois Public Act 99-906, which became effective on June 1, 2017, is expected to accelerate the deployment of energy efficiency in MISO Zone 4. This greater deployment of energy efficiency is expected to put additional future downward pressure on electric demand in MISO Zone 4, which in turn will cause future LCR and PRMR values for MISO Zone 4 to remain flat or decrease.

F. How well do existing programs and initiatives predict future resource adequacy?

IIEC Response:

The Organization of MISO States (OMS) MISO Survey has, to date, tended to overstate the potential risk of a capacity shortage. It has done so by: (i) overstating potential capacity shortfalls; (ii) failing to clearly indicate that a zone can import capacity from other MISO zones to meet any Planning Reserve Margin Requirement (PRMR) shortfall it may have up to the difference between the zone's PRMR and Local Clearing Requirement (LCR) values; and (iii) placing a disproportionate emphasis on the low end of the results of the survey.

The 2016 OMS MISO Survey suggested that MISO Zone 4 for 2017/2018 could have anywhere from a shortfall of 1,200 MW in Installed Capacity to a surplus of 500 MW of Installed Capacity with any shortfall being able to be met with imports of capacity from other MISO zones.²² In Unforced Capacity (UCAP) terms, this is a shortfall of approximately 1,117 MW to a surplus of approximately 465 MW.²³ The actual MISO 2017/2018 Planning Resource Auction (PRA) results yielded a surplus of 724 MW of UCAP in excess of the Zone 4 PRMR of 9,894 MW. The 724 MW of UCAP translates into approximately 778 MW of Installed Capacity – 56% higher than the 500 MW surplus upper end of the 2016 OMS MISO Survey projection.²⁴ IIEC's pre-workshop comments of November 30, 2017 and post-workshop comments of December 21, 2017 included specific recommendations to be pursued in the MISO stakeholder process to address the shortcomings of the OMS MISO Survey.²⁵

Putting aside the historical shortcomings of the OMS MISO Survey results, the 2017 OMS MISO Survey in terms of Installed Capacity projects a potential surplus over the Zone 4 PRMR of 700 MW to 1,600 MW and a potential surplus over the Zone 4 LCR of 4,000 MW to 4,900 MW.²⁶ However, there is more recent data available from MISO that can update these projections and present them in terms of UCAP. First, for Zone 4 for 2018/2019, the 2017 OMS MISO Survey identified 11,800 MW of Committed capacity and 900 MW of Potential capacity.²⁷ This translates into 10,923 MW to 11,756 MW of UCAP.²⁸ MISO's January 10, 2018 PRA Preliminary Data estimates that for 2018/2019 the Zone 4 LCR to be 5,138 MW.²⁹ Thus, the estimated Zone 4 UCAP surplus over the LCR is currently 5,785 MW to 6,618 MW. As noted in IIEC's comments in Section II.A., the Zone 4 PRMR should be examined on an overall Zones 2 through 7 basis, since MISO Zone 4 can import the portion of its PRMR that exceeds its LCR. For Zones 2 through 7, the 2017 OMS MISO Survey projected 91,500 MW to 93,600 MW of Installed Capacity or 84,702 MW to 86,646 MW of UCAP.³⁰ However, reflecting the latest transmission limitation values, this adjusts to 84,918 MW to 86,862 MW of UCAP.³¹ This is 2,429 MW to 4,373 MW in excess of MISO's January 10, 2018 PRA Preliminary Data PRMR for Zones 2 through 7 of 82,489 MW.³²

III. Market Design Impact on Resource Adequacy

- A. What alternative opportunities are available to resources that could otherwise be used to meet resource adequacy in Zone 4 and how do these opportunities impact Zone 4 resource adequacy?

IIEC Response:

In its comments in Section II.C., IIEC discussed the potential for capacity resources currently selling capacity in MISO Zone 4 to instead sell their capacity into the PJM capacity market and the potential impact of such a switch of markets on resource adequacy in MISO Zone 4, in conjunction with potential capacity resource retirements.

Firm transmission service, which is difficult to secure, is needed from MISO to PJM to sell capacity into the PJM capacity auctions. It should be noted that the prices for capacity that could be earned by MISO Zone 4 capacity in the most recently conducted PJM capacity auction have been relatively low. Specifically, in the 2nd Incremental Auction for 2018/2019, the price was only \$5.00 per MW-day. For the 1st Incremental Auction for 2019/2020, it was only \$15.00 per MW-day. Finally, for the Base Residual Auction for 2020/2021, it was only \$76.53 per MW-day.³³ As discussed in IIEC's comments in Section II.C., to the extent a capacity supplier's coal-fired capacity is at-risk of shutdown and is needed to meet the MISO Zone 4 Local Clearing Requirement (LCR), it would be able to earn at least \$139.18 per MW-day in the MISO Planning Resource Auction (PRA) due to its ability to take advantage of MISO's default offer price rules for coal-fired generation that is at risk of suspension of operation or retirement.

- B. How does the transmission system impact resource adequacy?

IIEC Response:

The transmission system limitations affect the ability to import capacity into zones and export capacity out of zones. They also affect how much capacity can be transmitted from the MISO South zones (MISO Zones 8 through 10) to the MISO North/Central zones (MISO Zones 1 through 7). The amount of capacity that can be exported from each zone is the Capacity Export Limit (CEL). The amount of capacity that can be imported into a zone is equal to the Planning Reserve Margin Requirement (PRMR) for that zone less the Local Clearing Requirement (LCR) for that zone. The amount of capacity that can be transmitted between MISO South and MISO North/Central subregions is referred to as the Sub-Regional Export Constraint (SREC).

Of the greatest interest to MISO Zone 4 are: (i) the LCR value for MISO Zone 4, (ii) the CEL for MISO Zone 1 (MN, MT, ND, SD and Western WI), and (iii) the SREC value, as these are the only constraints that have hit their limit in the MISO Planning Resource Auction (PRA) since its inception. MISO Zone 4 has the lowest LCR value as a percentage of PRMR in all of MISO. Specifically, the preliminary 2018/2019 MISO Zone 4 LCR is 5,138 MW.³⁴ This is only 51.5% of the preliminary 2018/2019 MISO Zone 4 PRMR of 9,976 MW.³⁵ As a

result, up to 4,838 MW (48.5%) of the total 9,976 MW total capacity need for MISO Zone 4 can be imported from other MISO zones. This ability to import large amounts of capacity into MISO Zone 4 is expected to continue, if not increase, in future years due to the addition of the MISO Multi-Value Transmission projects (MVPs) that are currently being pursued in Illinois and elsewhere.

With respect to the CEL for MISO Zone 1, Zone 1 is projected to be 900 MW to 1,100 MW surplus for capacity for 2018/2019.³⁶ However, significant portions of that excess capacity can be locked up in MISO Zone 1 and unavailable for export to the other MISO zones, including MISO Zone 4, due to MISO Zone 1's CEL, which will only be 516 MW for 2018/2019.³⁷

With respect to the SREC value, MISO South (MISO Zones 8, 9 and 10) is projected to have a 2,600 MW to 3,500 MW surplus of capacity for 2018/2019.³⁸ However, similar to the situation in MISO Zone 1, significant portions of this excess capacity can be locked up in MISO South and not available for export to the MISO zones in the MISO North/Central subregion, including MISO Zone 4, due to the MISO South SREC value, which preliminarily is only 1,500 MW for 2018/2019.³⁹

C. How do facilities owned by municipals and cooperatives affect resource adequacy?

IIEC Response:

A significant portion of the capacity resources and load in MISO Zone 4 belongs to municipals and cooperatives. To the extent the municipals and cooperatives are "short" on self-supplied and bilaterally contracted capacity, it causes them to draw on capacity from the MISO Planning Resource Auction (PRA). To the extent they are "long" with respect to such capacity, they can either sell the capacity bilaterally to other market participants or offer the capacity into the MISO PRA.

It should be noted that several out-of-state municipals and electric utilities, especially in Missouri, also own, or have bilateral contracts with, capacity resources located in MISO Zone 4. This capacity counts toward meeting the LCR for MISO Zone 4 since it is physically located in MISO Zone 4. While it counts toward meeting the LCR in MISO Zone 4, it does not count toward meeting the PRMR of the Load Serving Entities in MISO Zone 4.

D. How does bilateral contracting, self-supply, and fixed resource adequacy planning affect resource adequacy?

IIEC Response:

Self-supply and bilateral contracting are two important tools that allow Load Serving Entities (LSEs) to manage their price risk associated with acquiring the capacity they

need to meet their MISO capacity obligations. Essentially, on a forward-looking basis, LSEs who utilize self-supply or bilaterally purchase capacity are agreeing to pay a known price in lieu of a future unknown price. Specifically, LSEs are facing the risk of paying the MISO Planning Resource Auction (PRA) price for capacity for future MISO planning years. They do not know the PRA price for capacity for each future planning year until a month and a half before the start of that future planning year. However, LSEs do know that it could range from zero to as high as \$260 per MW-day (the Cost of New Entry (CONE) price). Furthermore, from sources such as the forward-looking capacity prices offered by other market participants, the annual OMS MISO Survey, publicly announced generation additions, publicly released generation shutdown announcements and MISO's Preliminary PRA data, LSEs have some idea of whether those future MISO PRA prices are likely to fall within that range. Based on this information and their own risk tolerance, they decide whether to pursue self-supply and/or bilateral contracts to cover some or all of their expected future share of the MISO Planning Reserve Margin Requirement (PRMR).

It important to also understand there is not some fixed point before the beginning of each MISO planning year where LSEs need to make a decision with respect self-supply and bilateral contracting. LSEs can make that decision anytime from many years to only two months before the start of that future planning year. As a result, there is a continuum of bilateral trading for capacity in the wholesale market that begins from several years in advance of the future planning year and continues up until just before the MISO PRA for that future planning year is conducted. In that ongoing trading, the market is iterating on the likely MISO PRA price for capacity for that future planning year, based on the expected balance between supply and demand for capacity in that future year and the risk associated with that balance. When price risks become high enough, LSEs tend to offload that risk by either pursuing self-supply (e.g., by building their own generation, expanding demand response or expanding energy efficiency) or entering into bilateral contracts. Those bilateral contracts can, in turn, provide an agreed upon advance revenue stream that can help to secure financing for investment in new capacity resources beyond those pursued through self-supply.

To date, this market structure has provided resource adequacy in MISO Zone 4. It will do so in the future and is the most cost-effective manner in which to do so. However, as discussed later, IIEC believes that measured reforms can be undertaken to improve this market structure by improving the transparency and liquidity of the existing forward bilateral market for capacity in MISO Zone 4 and improving price formation in the MISO PRA.

- E. How do so-called out-of-market revenues (revenues separate and apart from those obtained in wholesale markets (e.g., Zero Emission payments or renewable energy credits) impact resource adequacy?

IIEC Response:

IIEC generally opposes subsidies such as mandatory acquisition of zero emission credits and the mandatory acquisition of renewable energy credits. Such subsidies favor certain stakeholders over others and lead to additional subsidies.

IIEC also generally opposes instituting market structure changes that have the effect of paying a subsidy to suppliers through higher market prices intended to compensate those suppliers due to the adverse impacts of subsidies previously provided to other suppliers. All that does is have retail electric customers take on the cost of yet additional subsidies.

Finally, IIEC agrees that the mandatory acquisition of zero emission credits and the mandatory acquisition of renewable energy credits have adversely affected the competitiveness of suppliers that do not receive the benefits of those subsidies. However, there has been no evidence to date that those subsidies have created a resource adequacy problem in MISO Zone 4.

IV. Scope

- A. Please provide commentary on any relevant substantive or process issue you believe has not been adequately captured in the Sections above.

IIEC Response:

IIEC's members in Illinois collectively consume approximately 13 million MWh annually and employ approximately 90,000 people in Illinois. They pay significant taxes to both the State of Illinois and the local communities their facilities are located within. Electricity costs are a significant part of their costs. All of them are critically interested in the receipt of reliable electric service at the lowest reasonable cost. However, any change to the capacity market structure in MISO Zone 4 that has the effect of significantly raising capacity prices for the benefit of existing generation suppliers will adversely affect the ability of many of IIEC's members to compete in US and global markets. This could lead to decreased production in Illinois or, in the extreme, shutdown of facilities. For this reason, it is imperative that policymakers consider the economic implications to Downstate Illinois as a whole, not just to the coal-fired generation industry, when considering any proposed changes to the capacity market in MISO Zone 4.

V. Potential Policy Options

- A. What changes, if any, should be made to better enable measurement and assessment of what resources are available to meet Zone 4 resource adequacy requirements?

IIEC Response:

In its Pre-Workshop Comments of November 30, 2017 and Post-Workshop Comments of December 21, 2017, IIEC made the following specific recommendations to better enable the measurement and assessment of the resources that are available to meet Midwest Independent System Operator, Inc. (MISO) Zone 4's resource adequacy requirements in order to improve the liquidity and transparency of the forward capacity market in MISO Zone 4:

- 1. **Improve the Organization of MISO States (OMS) MISO Survey** -- Further improve the annual OMS MISO Survey such that it provides a very good 5-year forward looking projection of supply and demand for capacity that is clearly and coherently communicated with minimal risk of misinterpretation. This should include providing a clear indication of the amount of capacity that can be exported and imported from each MISO zone. It should also include further consideration with respect to whether the proper amount of planned generation capacity from MISO's interconnection queue is being included in the survey. Finally, Load Serving Entities (LSE) responses from Illinois Alternative Retail Electric Suppliers (ARES) should be sought in the survey process, rather than relying on Ameren Illinois' responses alone.*
- 2. **Improve the Lead Time and Transparency of Generation Suspension and Retirement Notices to MISO** -- Increase the notice time and eliminate the confidentiality requirement associated with MISO's Attachment Y suspension and retirement request process. Specifically, lengthen the notice for cessation of operation to 52 weeks and eliminate the confidentiality of MISO Attachment Y notices entirely.⁴⁰*
- 3. **Development of Forward Capacity Market Price Indices** -- Work with industry trade press to provide for regular reporting with respect to the forward market prices for capacity bilaterally traded in MISO Zone 4.*

None of these recommendations require any legislative action. The first two items can be pursued with MISO through stakeholder discussions in MISO's Resource Adequacy Subcommittee. The third item could be facilitated by the Illinois Commerce Commission, Ameren Illinois and/or MISO.

Greater detail on the reasoning behind these recommendations and how they could be pursued can be found on pages 10 through 13 of IIEC's November 30, 2017 Pre-Workshop Comments (<https://www.icc.illinois.gov/downloads/public/IIEC%20pre-workshop%20comments.pdf>) and pages 3 through 6 of IIEC's December 21, 2017 Post-Workshop Comments (<https://www.icc.illinois.gov/downloads/public/IIEC%20post-workshop%20comments.pdf>).

- B. What changes, if any, should be made to MISO's capacity construct including to the MISO planning resource auction to better ensure resource adequacy?

IIEC Response:

IIEC strongly opposed MISO's now defunct Competitive Retail Solution (CRS) because, among other things, it used a downward sloping demand curve, a mandatory three-year in advance forward capacity auction, and contained provisions which inhibited retail customer access to the bilateral wholesale market for capacity within MISO. Those radical changes would have acted to unduly raise the market price for capacity in MISO Zone 4 to the benefit of suppliers and at the expenses of retail customers. IIEC generally opposes any similar changes to the MISO capacity market structure.

While IIEC opposes the forgoing changes, as outlined in its Pre-Workshop Comments of November 30, 2017 and Post-Workshop Comments of December 21, 2017, IIEC does support exploring in the MISO stakeholder process a measured change to price formation in the MISO Planning Resource Auction (PRA). Specifically, IIEC recommends cautiously exploring the possibility of raising the maximum auction clearing price allowed in the MISO PRA from the gross Cost of New Entry (CONE) for a Combustion Turbine (CT) generator (currently approximately \$260 per MW-day) to some greater value, in order to provide greater headroom in the PRA above the net CONE of a CT generator. Details on the reasoning and specifics of the recommendation can be found on page 13 of IIEC's November 30, 2017 Pre-Workshop Comments (<https://www.icc.illinois.gov/downloads/public/IIEC%20pre-workshop%20comments.pdf>) and pages 6-7 of IIEC's December 21, 2017 Post-Workshop Comments (<https://www.icc.illinois.gov/downloads/public/IIEC%20post-workshop%20comments.pdf>).

- C. What changes, if any, should be made to MISO's energy or ancillary service constructs that would help maintain resource adequacy?

IIEC Response:

IIEC does not believe any changes are needed at this time.

- D. What actions should the Illinois Commerce Commission and/or the Illinois Power Agency take, if any, to address resource adequacy assuming no new legislative authority?

IIEC Response:

The Illinois Commerce Commission (ICC), through its Staff, could work with Illinois stakeholders and the MISO in advancing discussions with regard to IIEC's recommendations to: (i) Improve the Organization of MISO States (OMS) MISO Survey; (ii) Improve the Lead Time and Transparency of Generation Suspension and Retirement Notices to MISO; and (iii) Explore Raising the Maximum Auction Clearing Price Allowed in the MISO Planning Resource Auction (PRA). The ICC, through its Staff, could also facilitate IIEC's recommendation with respect to the Development of Forward Capacity Market Price Indices.

The Illinois Power Agency (IPA) should continue to perform its role with respect to the acquisition of capacity for default service customers of Ameren Illinois. This includes managing price risk by using a combination of bilateral contracting and the MISO PRA to acquire that capacity in a manner that balances price risk and cost based on future expected market prices for capacity in MISO Zone 4.

- E. What actions should the Illinois General Assembly take, if any, to address Zone 4 resource adequacy?

IIEC Response:

For the reasons outlined by IIEC in the other sections of these comments, there is no need for new legislation at this time. There is no current or looming resource adequacy problem in MISO Zone 4. The existing capacity market structure as it has evolved over the past 15 years has and continues to provide resource adequacy. Measured improvement can be made through the MISO stakeholder process or facilitation by the Illinois Commerce Commission without the need for new legislation.

IIEC generally opposes the introduction of any new subsidies or the introduction of market structure changes that would have the effect of providing a subsidy to suppliers by significantly raising the market price for capacity in MISO Zone 4. In particular, IIEC opposes: (i) imposing additional capacity requirements on Load Serving Entities (LSEs), (ii) having the Illinois Power Agency (IPA) acquire capacity for all retail customers, (iii) creating an Illinois resource adequacy portfolio standard and (iv) moving Ameren Illinois from MISO to PJM. The foregoing would act to unduly raise market prices for capacity, to the benefit of suppliers, at the expenses of retail customers.

Imposing additional capacity requirements on Alternative Retail Electric Suppliers (ARES) and the Illinois Power Agency (IPA), such as requiring them to use a Fixed Resource Adequacy Plan (FRAP) or to bilaterally purchase capacity a year or more in advance of a

planning year, would eliminate the market manipulation protections afforded by the MISO Planning Resource Auction (PRA) and inhibit the ability of those ARES and their retail customers to directly manage their cost of capacity within their risk tolerance through a combination of bilateral contracting and the use of the MISO PRA.

Requiring the IPA to acquire the capacity for all Ameren Illinois retail customers through bilateral contracts or an auction process would be even more problematic. In particular, it is important to note that the State of Illinois cannot require wholesale capacity suppliers to offer power into an IPA solicitation for capacity. As a result, those suppliers could manipulate the price paid for capacity by the IPA. In addition, the IPA approach would completely eliminate the ability of ARES and their retail customers to directly manage their cost for capacity within their own risk tolerance. Finally, it would eliminate the ability of retail customers to self-supply their own capacity through behind-the-meter cogeneration or by being interruptible under MISO's Demand Response provisions.

Creating an Illinois resource adequacy portfolio standard would add yet another mandated subsidy on the back of retail customers.

Finally, moving Ameren Illinois from MISO to PJM would involve retail customers paying large exit fees to MISO in addition to paying unduly higher capacity prices.

All of the forgoing IIEC concerns are discussed in greater detail on pages 14 through 18 of IIEC's November 30, 2017 Pre-Workshop Comments that can be found at the following link:

<https://www.icc.illinois.gov/downloads/public/IIEC%20pre-workshop%20comments.pdf>

- F. Please describe any additional potential policy option(s) you would like to see considered or that you would recommend not be considered.

IIEC Response:

For the reasons discussed elsewhere in IIEC's comments herein, IIEC does not believe any additional potential policy options need to be considered at this time beyond the ones it has proposed elsewhere in its comments.

- G. Is it important for any selected policy option to be market-based? If so, why? If not, why not?

IIEC Response:

Yes, IIEC supports market options that allow its members to directly manage their acquisition of electric capacity, energy and ancillary services through properly-functioning competitive markets. Putting aside the existing renewable and zero emission credit mandates that are currently imposed on Alternative Retail Electric Suppliers (ARES) and their retail customers in Illinois, IIEC believes that the current retail

and wholesale electricity markets in Illinois largely succeed in providing these market options. IIEC generally opposes any option, market-based or not, that would have the effect of providing a subsidy to suppliers by unduly raising market prices and limiting the ability of each of IIEC's members to directly manage their cost of capacity within their own risk tolerance.

Illinois Industrial Energy Consumers (IIEC) thanks the Illinois Commerce Commission (ICC) for the opportunity to provide these comments on the subject of Resource Adequacy in MISO Zone 4. If there are any questions or concerns regarding these comments, please do not hesitate to contact us.

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¹ Under a self-schedule, the Load Serving Entity (LSE) offers its capacity into the MISO Planning Resource Auction (PRA) at an offer price of zero to cover all or a portion of that LSE's assigned share of MISO's Planning Reserve Margin Requirement (PRMR). By being offered at a price of zero, the self-scheduled offer is guaranteed to clear in the MISO PRA along with the portion of the LSE's PRMR that is being covered by that self-scheduled offer.

Under a Fixed Resource Adequacy Plan (FRAP), the LSE submits capacity to MISO to cover all or a portion of that LSE's assigned share of MISO's PRMR. Both capacity submitted in the FRAP and the portion of the LSE's PRMR that is covered by that capacity submission are excluded from the MISO PRA.

² 8,435 MW of the 9,894 MW of total capacity resource required for MISO Zone 4 came from capacity resources located within MISO Zone 4 that were either self-scheduled into the PRA or used in a FRAP. See 2017/2018

Planning Resource Auction Results, Resource Adequacy Subcommittee, May 10, 2017.
(https://www.misoenergy.org/_layouts/MISO/ECM/Redirect.aspx?ID=249648) at Slide 5.

³ See *2017/2018 Planning Resource Auction Results*, Resource Adequacy Subcommittee, May 10, 2017.
(https://www.misoenergy.org/_layouts/MISO/ECM/Redirect.aspx?ID=249648) at Slide 5.

⁴ See *2017/2018 Planning Resource Auction Results*, Resource Adequacy Subcommittee, May 10, 2017.
(https://www.misoenergy.org/_layouts/MISO/ECM/Redirect.aspx?ID=249648) at Slides 5 and 7.

⁵ 686 MW from Zone 1 (limited by Capacity Export Limit); 15,149 MW from Zone 2; 11,009 MW from Zone 3; 10,618 MW from Zone 4; 7,950 MW from Zone 5; 18,718 MW from Zone 6; 22,031 MW from Zone 7; and 1,500 MW from Zones 8 through 10 (limited by Sub-Regional Export Constraint);
See *2017/2018 Planning Resource Auction Results*, Resource Adequacy Subcommittee, May 10, 2017
(https://www.misoenergy.org/_layouts/MISO/ECM/Redirect.aspx?ID=249648) at Slides 5 and 7.

⁶ 13,366 MW for Zone 2; 9,781 MW for Zone 3; 9,894 MW for Zone 4; 8,598 MW for Zone 5; and 18,422 MW for Zone 6; 22,295 MW for Zone 7;
See *2017/2018 Planning Resource Auction Results*, Resource Adequacy Subcommittee, May 10, 2017.
(https://www.misoenergy.org/_layouts/MISO/ECM/Redirect.aspx?ID=249648) at Slide 5.

⁷ See Third Quarter 2017 Review, Dynegy, November 1, 2017 (<http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NjgzMjY3fENoaWxkSUQ9MzkyODgzfFR5cGU9MQ==&t=1>) at Slide 18.

⁸ The 1,437 MW consists of 151 MW at Coffeen, 307 MW at Newton, 329 MW at Duck Creek, 150 MW at Edwards, 260 MW at Hennepin and 240 MW from Joppa; See Third Quarter 2017 Review, Dynegy, November 1, 2017
(<http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NjgzMjY3fENoaWxkSUQ9MzkyODgzfFR5cGU9MQ==&t=1>) at Slide 18
and Dynegy 2016 Annual Report (https://www.dynegy.com/sites/default/files/Dynegy_2016_Annual_Report.pdf) at 92; For the 1,044 MW, see Third Quarter 2017 Review, Dynegy, November 1, 2017 at Slide 32.

⁹ 4,126 MW = 4,432 MW x (1.078/1.158); See MISO Planning Year 2017-2018 Loss of Load Expectation Study Report, December 17, 2016 (<https://www.misoenergy.org/api/documents/getbymediaid/80584>) at 29.

¹⁰ 39% \approx 4,126 MW / 10,618 MW.

¹¹ See MISO Generators Approved to Retire (Public) as of January 2, 2018.
[https://www.oasis.oati.com/woa/docs/MISO/MISOdcs/OASIS_Posting_of_Approved_Generator_Retirements_\(Public\)_2018-01-02.pdf](https://www.oasis.oati.com/woa/docs/MISO/MISOdcs/OASIS_Posting_of_Approved_Generator_Retirements_(Public)_2018-01-02.pdf)

¹² See Id.

¹³ See Dynegy Presentation Illinois Commerce Commission MISO Zone 4 Workshop, December 7, 2017
(<https://www.icc.illinois.gov/downloads/public/Dynegy%20December%20%20presentation.pdf>) at slide 9.

¹⁴ See Dynegy 2016 Annual Report
(https://www.dynegy.com/sites/default/files/Dynegy_2016_Annual_Report.pdf) at 92.

¹⁵ See Dynegy's Post-Workshop Comments on MISO Zone 4 Resource Adequacy Issues for the Illinois Commerce Commission Workshop Process, December 21, 2017
(<https://www.icc.illinois.gov/downloads/public/Dynegy%20post-workshop%20comments.pdf>) at 3.

¹⁶ As noted IIEC's comments in Section II.A., Dynegy can already sell up to 1,437 MW of its 5,500 MW of MISO Zone 4 capacity into the PJM capacity market.

¹⁷ See Third Quarter 2017 Review, Dynegy, November 1, 2017 (<http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NjgzMjY3fENoaWxkSUQ9MzkyODgzfFR5cGU9MQ==&t=1>) at Slide 31.

¹⁸ See *DEFAULT TECHNOLOGY-SPECIFIC AVOIDABLE COSTS*, MISO Independent Market Monitor, January 18, 2018. <https://www.misoenergy.org/api/documents/getbymediaid/99513>

¹⁹ See <https://cdn.misoenergy.org/GI%20Public%20Queue110556.xlsx>.

²⁰ See MISO Planning Year 2018-2019 Loss of Load Expectation Study Report, October 19, 2017 (<https://www.misoenergy.org/api/documents/getbymediaid/80578>) at 21 and 22.

²¹ See *2017/2018 Planning Resource Auction Results*, Resource Adequacy Subcommittee, May 10, 2017 (https://www.misoenergy.org/_layouts/MISO/ECM/Redirect.aspx?ID=249648) at Slide 11.

²² See 2016 OMS MISO Survey Results, July 2016 (<https://cdn.misoenergy.org/20160629%20RASC%20Item%2003%20OMS-MISO%20Survey%20Full%20Deck87309.pdf>) at Slide 9.

²³ 1,117 MW = 1,200 MW x (1.078/1.158); 465 MW = 500 MW x (1.078/1.158); See MISO Planning Year 2017-2018 Loss of Load Expectation Study Report, December 17, 2016 at 29.

²⁴ 778 MW = 724 MW x (1.158/1.078); See *Id.*

²⁵ See Resource Adequacy in MISO Zone 4 Pre-Workshop Comments of the Illinois Industrial Energy Consumers, November 30, 2017 (<https://www.icc.illinois.gov/downloads/public/IIEC%20pre-workshop%20comments.pdf>) at 10-11 and Resource Adequacy in MISO Zone 4 Post-12/7/2017 Workshop Comments of Illinois Industrial Energy Consumers, December 21, 2017 (<https://www.icc.illinois.gov/downloads/public/IIEC%20post-workshop%20comments.pdf>) at 3-5.

²⁶ 4,000 MW = 700 MW + 10,800 MW – 7,500 MW; 4,900 MW = 1,600 MW + 10,800 – 7,500 MW; See 2017 OMS MISO Survey Results, July 2017 (<https://cdn.misoenergy.org/20170712%20RASC%20Item%2002%20OMS%20Survey%20Results87552.pdf>) at Slide 36.

²⁷ See 2017 OMS MISO Survey Results, July 2017 (<https://cdn.misoenergy.org/20170712%20RASC%20Item%2002%20OMS%20Survey%20Results87552.pdf>) at Slide 36.

²⁸ 10,923 MW = 11,800 MW x (1.084/1.171); 11,756 MW = (11,800 MW + 900 MW) x (1.084/1.171); See MISO Planning Year 2018-2019 Loss of Load Expectation Study Report, October 19, 2017 (<https://www.misoenergy.org/api/documents/getbymediaid/80578>) at 26.

²⁹ See MISO PRA Preliminary Data, January 10, 2018 (<https://cdn.misoenergy.org/20180110%20RASC%20Item%2003a%20PRA%20Preliminary%20Data97314.pdf>) at Slide 4.

³⁰ See 2017 OMS MISO Survey Results, July 2017 (<https://cdn.misoenergy.org/20170712%20RASC%20Item%2002%20OMS%20Survey%20Results87552.pdf>) at

Slides 14, 24, 30, 36, 42, 48 and 54; 84,702 MW = 91,500 MW x (1.084/1.171); 86,646 MW = 93,600 MW x (1.084/1.171); See MISO Planning Year 2018-2019 Loss of Load Expectation Study Report, October 19, 2017 (<https://www.misoenergy.org/api/documents/getbymediaid/80578>) at 26.

³¹ 84,916 MW = 84,702 MW + 516 MW – 600 MW + 1,500 MW – 1,200 MW; 88,682 MW = 86,646 MW + 516 MW – 600 MW + 1,500 MW – 1,200 MW; See 2017 OMS MISO Survey Results, July 2017 (<https://cdn.misoenergy.org/20170712%20RASC%20Item%2002%20OMS%20Survey%20Results87552.pdf>) at Slide 14; MISO PRA Preliminary Data, January 10, 2018 (<https://cdn.misoenergy.org/20180110%20RASC%20Item%2003a%20PRA%20Preliminary%20Data97314.pdf>) at Slide 4; and MISO Review of Preliminary SREC and SRIC Calculations for 2018-2019, January 10, 2018 (<https://cdn.misoenergy.org/20180110%20RASC%20Item%2003b%20SREC%20SRIC%20Review97315.pdf>) at Slide 6.

³² See MISO PRA Preliminary Data, January 10, 2018 (<https://cdn.misoenergy.org/20180110%20RASC%20Item%2003a%20PRA%20Preliminary%20Data97314.pdf>) at Slide 4.

³³ See PJM Resource Clearing Prices Auction Summary, October 3, 2017 (<http://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/rpm-auctions-resource-clearing-price-summary.ashx?la=en>)

³⁴ See MISO PRA Preliminary Data, January 10, 2018 (<https://cdn.misoenergy.org/20180110%20RASC%20Item%2003a%20PRA%20Preliminary%20Data97314.pdf>) at Slide 4.

³⁵ See Id.

³⁶ See 2017 OMS MISO Survey Results, July 2017 (<https://cdn.misoenergy.org/20170712%20RASC%20Item%2002%20OMS%20Survey%20Results87552.pdf>) at Slide 14.

³⁷ See MISO PRA Preliminary Data, January 10, 2018 (<https://cdn.misoenergy.org/20180110%20RASC%20Item%2003a%20PRA%20Preliminary%20Data97314.pdf>) at Slide 4.

³⁸ See 2017 OMS MISO Survey Results, July 2017 (<https://cdn.misoenergy.org/20170712%20RASC%20Item%2002%20OMS%20Survey%20Results87552.pdf>) at Slide 14.

³⁹ See MISO Review of Preliminary SREC and SRIC Calculations for 2018-2019, January 10, 2018 (<https://cdn.misoenergy.org/20180110%20RASC%20Item%2003b%20SREC%20SRIC%20Review97315.pdf>) at Slide 6.

⁴⁰ IIEC notes that it is not opposed to keeping MISO Attachment Y-2 submissions confidential. Attachment Y-2 submissions are permitted under the MISO Tariff in order to allow a generation resource to explore whether its continued operation might be necessary for transmission reliability and necessitate it entering into a System Support Resource (“SSR”) contract with MISO.